

Inventory Notes

Initial Valuation of Inventory

- Definition: Includes all costs necessary to get the item ready and available for sale.
- Key Components:
 - Cost of the inventory itself.
 - Additional costs (e.g., shipping, handling, preparation) to make the inventory saleable.

Product Costs vs. Period Costs

- Product Costs:
 - Included in inventory valuation.
 - Also known as inventoriable costs.
 - Examples: Direct materials, direct labor, and manufacturing overhead.
- Period Costs:
 - Not included in inventory valuation.
 - Expensed in the period incurred (e.g., administrative expenses, selling expenses).

What Units Are Included in Inventory

1. Goods in Transit - Receiving

- Determined by shipping terms:
 - FOB Destination: Goods are not included in the buyer's inventory until they reach the destination.
 - FOB Shipping Point: Goods are included in the buyer's inventory once shipped by the seller.

2. Consigned Goods

- Out on Consignment: Included in the consignor's inventory.
- Valuation: Same as regular inventory, including all costs necessary to get the item ready for sale to the customer.

3. Goods Out on Approval

- Inclusion: Included in the seller's inventory at the original cost until:
 - The customer approves and purchases the goods, or
 - The goods are returned by the customer.

4. Obsolete Inventory

- Status: Not considered inventory.
- Treatment: Not recorded as inventory; typically written off or adjusted to reflect reduced value.

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Standard Inventory Calculations

1. Cost of Goods Sold (COGS)

- Formula:

COGS = Beginning Finished Goods Inventory + Purchases (for resellers) or Cost of Goods Manufactured (for manufacturers) - Ending Finished Goods Inventory

- Components:
 - **Beginning Finished Goods Inventory:** Value of inventory at the start of the period.
 - **Purchases/Cost of Goods Manufactured:** Cost of inventory acquired or produced during the period.
 - **Ending Finished Goods Inventory:** Value of inventory remaining at the end of the period.

2. Cost of Goods Manufactured

- Key Component:
 - **Direct Materials Used:** Cost of raw materials consumed in production.
 - Other components include direct labor and manufacturing overhead (not detailed in provided points).

3. Gross Profit

- Formula:

Gross Profit = Sales Revenue - Cost of Goods Sold

- Components:
 - **Sales Revenue:** Total income from sales.
 - **Cost of Goods Sold:** As calculated above.

Inventory Cost Flow Assumptions

1. FIFO (First-In, First-Out)

- **Definition:** Sells the oldest inventory first.
- **Results in Rising Costs:**
 - Higher ending inventory (reflects newer, higher-cost units).
 - Lower COGS (uses older, lower-cost units).
 - Higher gross profit.

- **Graph:**

- Cost of a Unit of Inventory

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| _____ Ending Inventory (newer, higher cost)
| /
| /
| / COGS (older, lower cost)
|__/_

Time

2. LIFO (Last-In, First-Out)

- **Definition:** Sells the most recently purchased inventory first.
- **Results in Rising Costs:**
 - Lower ending inventory (reflects older, lower-cost units).
 - Higher COGS (uses newer, higher-cost units).
 - Lower gross profit.

- **Graph:**

Cost of a Unit of Inventory

^
| _____ COGS (newer, higher cost)
| /
| /
| / Ending Inventory (older, lower cost)
|__/_

Time

3. Weighted Average

- **Definition:** Averages the cost of all inventory units to determine a single cost per unit.
- **Calculation:** Total cost of inventory divided by total units available.
- **Effect:** Smooths out price fluctuations, resulting in moderate COGS and ending inventory values.

4. Specific Identification

- **Definition:** Tracks each unit of inventory individually, assigning its specific cost to COGS when sold.
- **Use Case:** Suitable for high-value or unique items (e.g., cars, jewelry).

Effects of Cost Flow Assumptions

Scenario	FIFO	LIFO
Rising Prices		
Ending Inventory	Higher (newer, higher-cost)	Lower (older, lower-cost)
COGS	Lower (older, lower-cost)	Higher (newer, higher-cost)
Gross Profit	Higher	Lower
Falling Prices		
Ending Inventory	Lower (newer, lower-cost)	Higher (older, higher-cost)
COGS	Higher (older, higher-cost)	Lower (newer, lower-cost)
Gross Profit	Lower	Higher

Which Method Should Be Used?

- **LIFO Preference:**
 - Preferred when tax benefits are desired (higher COGS reduces taxable income in rising price scenarios).
 - Less common due to IFRS restrictions; allowed under US GAAP.

Periodic vs. Perpetual Inventory Systems

Periodic Inventory System

- **Definition:** Inventory and COGS are determined at the end of the period.
- **Process:** Physical count or estimation at period-end.

Perpetual Inventory System

- **Definition:** Inventory and COGS are updated continuously with each transaction.
- **FIFO Perpetual:**
 - Identical to FIFO periodic in terms of cost flow (oldest units sold first).
- **LIFO Perpetual:**
 - New inventory becomes the "newest" layer each time a purchase is made.
 - COGS reflects the most recent costs at the time of sale.

- **LIFO Perpetual Graph:**

Cost of a Unit of Inventory

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$$\frac{\text{COGS (newest costs at sale)}}{\text{Ending Inventory (older costs)}}$$

Time

Moving Average (Perpetual)

- **Definition:** In a perpetual inventory system, every time new inventory is purchased, a new average cost is calculated for the entire inventory on hand.
- **Calculation:** Weighted average cost = (Total cost of inventory before purchase + Cost of new purchase) / (Total units before purchase + Units purchased).
- **Characteristics:**
 - More administratively difficult than mathematically difficult due to frequent recalculations.
 - Provides a running average cost, useful for real-time inventory valuation.
 - Effect: Smooths out cost fluctuations over time, similar to weighted average but updated continuously.
- **Graph** (Illustrative of Cost Averaging Over Time):

Average Cost of Inventory

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$$\frac{\text{New Average after Purchase 3}}{\text{New Average after Purchase 2}} \times \text{New Average after Purchase 1}$$

Time (Purchases)

Physical Inventory Count

- **Requirement:** Required by GAAP (Generally Accepted Accounting Principles) for year-end reporting.
- **Purpose:** To physically verify the quantity and condition of inventory items to ensure the accuracy of perpetual or periodic inventory records.
- **Process:**
 - Stop operations or count during off-hours to avoid disruptions.
 - Use count sheets, tags, or scanners to record actual counts.
 - Compare physical count to book records and adjust for variances (e.g., shrinkage, theft, errors).

- **Importance:** Helps detect discrepancies, prevent fraud, and ensure financial statements reflect true inventory values.

Errors in Inventory

- **Approach:** Best to perform two calculations to verify results and understand the impact of errors (e.g., calculate COGS and gross profit with and without the error).
- **Key Formulas Involved:**
 - **Cost of Goods Sold (COGS):** Beginning Inventory + Purchases - Ending Inventory.
 - **Ending Inventory:** Valued based on cost flow assumptions (FIFO, LIFO, etc.).
- **Effect of Inventory Errors:**
 - Errors in beginning or ending inventory directly affect COGS and gross profit.
 - Table summarizing effects:

Inventory Error	COGS Effect	Gross Profit Effect
Beginning Inventory Overstated	Overstated	Understated
Beginning Inventory Understated	Understated	Overstated
Ending Inventory Overstated	Understated	Overstated
Ending Inventory Understated	Overstated	Understated

- **Explanation:**
 - Overstated beginning inventory increases COGS (since COGS = Beginning + Purchases - Ending), leading to understated gross profit (Sales - COGS).
 - Understated ending inventory increases COGS, leading to understated gross profit.
 - Errors typically reverse in the next period, but correct identification is crucial for accurate financial reporting.

Lower of Cost or Market (LCM)

Two Methods

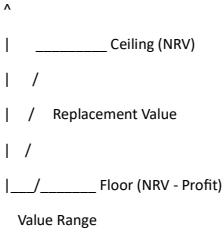
1. **Lower of Cost or Market** (Used for LIFO or Retail Method)
 - **Inventory Valuation:** Recorded at the lower of:
 - **A. Cost:** Historical price determined by historical cost-based methods (e.g., FIFO, LIFO).
 - **B. Market Value:** Refers to the market where the company purchases goods, typically the replacement value.
 - **Replacement Value:** Preferred market value, representing the cost to replace the inventory.
 - **The Corridor:**
 - **Ceiling:** Net Realizable Value (NRV), calculated as:

NRV = Selling Price - Cost to Complete/Dispose

- **Floor:** NRV minus a normal profit margin.

Floor = NRV - Normal Profit Amount

- **Graph (Corridor Illustration):** Market Value



2. **Lower of Cost or Net Realizable Value** (Used for methods other than LIFO or Retail)

- **Definition:** Inventory is valued at the lower of cost or NRV.
- **NRV Calculation:** Estimated selling price in the ordinary course of business, minus reasonably predictable costs of selling (completion, disposal, transportation).

Writing Down Inventory

- **Condition:** When market value or NRV is lower than cost, the difference (loss) must be written off to a loss account.
- **Recovery of Previous Decline:** Inventory can be written back up to its original cost if recovery occurs in the period of the write-down.

LCM under IFRS

- **Market Value:** Defined as net realizable value (NRV) under IFRS standards.

Applying LCM to Inventory

- Can be applied to individual items, categories, or the entire inventory, depending on company policy and accounting standards.